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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/562,661 | 10/11/2006 | Hirokazu Yoshimura | 284132US2PCT | 3843 |

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| EXAMINER | |
|---|---|
| AGGARWAL, YOGESH K | |

| ART UNIT | PAPER NUMBER |
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| 2622 | |

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/562,661 | YOSHIMURA, HIROKAZU | |
| | Examiner | Art Unit | |
| | YOGESH K. AGGARWAL | 2622 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *22-39* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *22-39* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *29 December 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *03/28/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 22-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Wakamoto (JP Patent # 05-225933) in view of Elabd (US Patent # 5,760,403).

[Claim 22]

Wakamoto teaches a method for forming and picking up an image by using a combination of an opening (window 1) and a two-dimensional image pick-up device (CCD 6 has a length and breadth), the method comprising providing an intermediate wave converter (micro-channel plate 3) between an opening (1) and a two-dimensional image pick-up device (6), the intermediate wave converter (3) being for converting a wave into a detectable wave that the two-dimensional image pick-up device can detect; converting an image formed from a wave coming from the opening into a detectable wave with the intermediate wave converter (fluorescent screen converts the wave into visual wave); catching and picking up an image of the detectable wave with the two-dimensional image pick-up device (Abstract).

Wakamoto fails to teach calibrating distortion of the picked-up image of the detectable wave with a computer on the basis of a one-to-one function between a coordinate on a wave-converting surface of the intermediate wave converter and a coordinate on a light-sensitive surface of the two- dimensional image pick-up device; and outputting a distortion-free image. However Elabd teaches a scintillation layer 20 that has patterns 24 and 26 in order to calibrate

the image picked up (col. 5 line 46-col. 6 line 46, figures 1 and 4). Elabd also teaches that the calibration patterns 24 and 26 on the scintillation surface and the variable spatial frequency bar patterns 25 and 27 are similar to patterns on the CCD sensor chip (col. 6 lines 2-5) and are in exact registration with each other (col. 6 lines 21-35). The corrected image as shown at col. 7 line 46 depend upon VMAX and VMIN, wherein VMIN is the response to the bar pattern at col. 7 lines 1-5.

Therefore taking the combined teachings of Wakamoto and Elabd, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have a distortion free image is outputted with the utilizing of the calibration patterns that allow the precise evaluation of the medical imaging equipment as taught in Elabd (col. 6 lines 36-46).

[Claim 23]

Elabd teaches wherein the intermediate wave converter (20) comprises a wave-converting surface having a calibration grid pattern (patterns 24 and 26), and distortion of the image on the wave-converting surface is calibrated using information of the calibration grid pattern (The corrected image as shown at col. 7 line 46 depend upon VMAX and VMIN, wherein VMIN is the response to the bar pattern at col. 7 lines 1-5)

[Claim 24]

Elabd teaches wherein the number of squares of the calibration grid pattern (patterns 24 and 26) corresponds to the spatial resolution required for applications (col. 6 lines 22-35).

[Claim 25]

Wakamoto teaches wherein the method for forming and picking up an image by using a combination of an opening and a two-dimensional image pick-up device according to Claim 23,

wherein the diameter of the opening is large, and the distance between the opening and the image-forming surface of the intermediate wave converter is long in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution (Abstract).

[Claim 26]

Wakamoto teaches wherein the diameter of the opening is small (figure 1). Elabd teaches that the distance between the opening and the image-forming surface of the intermediate wave converter is short in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution (figures 1 and 4, since they are connected to each other).

[Claim 27]

Elabd teaches generating a test image with the scintillation pattern 20 so that the wave-detecting elements are placed at grid points of the calibration grid pattern of the intermediate wave converter so that the intermediate wave converter itself serves as a two-dimensional image pick-up device (col. 5 lines 18-37).

[Claim 28]

Wakamoto teaches wherein a low energy ray is used as the electromagnetic wave coming from the opening, the diameter of the opening is large, and the distance between the opening and the image-forming surface of the intermediate wave converter is long in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution (See abstract and figure 1). Elabd teaches X-rays (col. 5 line 3).

[Claim 29]

Wakamoto wherein a low energy ray is used as the electromagnetic wave coming from the opening, the diameter of the opening is large, and the distance between the opening and the

image-forming surface of the intermediate wave converter is long in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution. Elabd teaches X-rays (col. 5 line 3).

[Claim 30]

Wakamoto teaches wherein a low energy ray is used as the electromagnetic wave coming from the opening, the diameter of the opening is small, and the distance between the opening and the image-forming surface of the intermediate wave converter is long in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution (See abstract and figure 1). Elabd teaches X-rays (col. 5 line 3).

[Claim 31]

Wakamoto teaches wherein a low energy ray is used as the electromagnetic wave coming from the opening and the diameter of the opening is small (See abstract and figure 1). Elabd teaches X-rays (col. 5 line 3) and the distance between the opening and the image-forming surface of the intermediate wave converter is short in comparison with a diameter of the intermediate wave converter to achieve an optimum resolution (Since figure 1 shows that they are all connected to each other).

[Claim 32]

Wakamoto teaches a method for forming and picking up an image by using a combination of an opening (window 1) and a two-dimensional image pick-up device (CCD 6 has a length and breadth), the method comprising providing an intermediate wave converter (micro-channel plate 3) between an opening (1) provided in a shield intercepting of a wave and a two-dimensional image pick-up device (6), the intermediate wave converter (3) being for converting

a wave into a detectable wave that the two-dimensional image pick-up device can detect; converting an image formed from an electromagnetic wave, quantum wave or sound wave coming from the opening into a detectable wave with the intermediate wave converter (fluorescent screen converts the wave into visual wave); catching and picking up an image of the detectable wave with the two-dimensional image pick-up device (Abstract).

Wakamoto fails to teach calibrating distortion of the picked-up image of the detectable wave with a computer on the basis of a one-to-one function between a coordinate on a wave-converting surface of the intermediate wave converter and a coordinate on a light-sensitive surface of the two- dimensional image pick-up device; and outputting a distortion-free image. However Elabd teaches a scintillation layer 20 that has patterns 24 and 26 in order to calibrate the image picked up (col. 5 line 46-col. 6 line 46, figures 1 and 4). Elabd also teaches that the calibration patterns 24 and 26 on the scintillation surface and the variable spatial frequency bar patterns 25 and 27 are similar to patterns on the CCD sensor chip (col. 6 lines 2-5) and are in exact registration with each other (col. 6 lines 21-35). The corrected image as shown at col. 7 line 46 depend upon VMAX and VMIN, wherein VMIN is the response to the bar pattern at col. 7 lines 1-5.

Therefore taking the combined teachings of Wakamoto and Elabd, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have a distortion free image is outputted with the utilizing of the calibration patterns that allow the precise evaluation of the medical imaging equipment as taught in Elabd (col. 6 lines 36-46).

[Claim 33]

Wakamoto teaches an apparatus for forming and picking up an image by using a combination of an opening (1) and a two-dimensional image pick-up device (6), the apparatus comprising: (a) an opening provided in a shield (see figure 1) intercepting propagation of a wave; (b) a cylinder (shown in figure 1) for integrating the opening and the two-dimensional image pick-up device for visible light, the cylinder being long so that the distance between the opening and the image-forming surface of the intermediate wave converter is long (See figure 1); (c) an intermediate wave converter (3) and (d) a two-dimensional image pick-up device (6) for picking up an image from the converted visible light (Abstract). Wakamoto fails to teach for converting an electromagnetic wave coming from the opening into visible light. However Elabd teaches a scintillation layer 20 that has converts the image into a visible image (col. 5 line 46-col. 6 line 46, figures 1 and 4). The corrected image as shown at col. 7 line 46 depend upon VMAX and VMIN, wherein VMIN is the response to the bar pattern at col. 7 lines 1-5. Therefore taking the combined teachings of Wakamoto and Elabd, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have converting an electromagnetic wave coming from the opening into visible light that allow the precise evaluation of the medical imaging equipment as taught in Elabd (col. 6 lines 36-46).

[Claim 34]

See claim 23.

[Claim 35]

See claim 25.

[Claim 36]

See claim 26.

[Claim 37]

Elabd teaches wherein distortion caused by a spatial image-forming system and lens image-forming system is automatically corrected by the computer using the calibration grid pattern of the wave-converting surface, and a distortion-free signal is output from the two-dimensional image pick-up device (col. 6 line 55-col. 6 line 50).

[Claim 38]

See claims 33 and 36.

[Claim 39]

Wakamoto teaches an apparatus for forming and picking up an image by using a combination of an opening (1) and a two-dimensional image pick-up device (6), the apparatus comprising: (a) an opening provided in a shield (see figure 1) intercepting propagation of a wave; (b) a cylinder in which the opening is formed (see figure 1); (c) an intermediate wave converter (3) for converting an electromagnetic wave; (d) a two-dimensional image pick-up device for picking up an image from the converted visible light (Abstract).

Wakamoto fails to teach calibrating distortion of the picked-up image of the detectable wave with a computer on the basis of a one-to-one function between a coordinate on a wave-converting surface of the intermediate wave converter and a coordinate on a light-sensitive surface of the two- dimensional image pick-up device; and outputting a distortion-free image. However Elabd teaches a scintillation layer 20 that has patterns 24 and 26 in order to calibrate the image picked up (col. 5 line 46-col. 6 line 46, figures 1 and 4). Elabd also teaches that the calibration patterns 24 and 26 on the scintillation surface and the variable spatial frequency bar patterns 25 and 27 are similar to patterns on the CCD sensor chip (col. 6 lines 2-5) and are in

exact registration with each other (col. 6 lines 21-35). The corrected image as shown at col. 7 line 46 depend upon VMAX and VMIN, wherein VMIN is the response to the bar pattern at col. 7 lines 1-5.

Therefore taking the combined teachings of Wakamoto and Elabd, it would be obvious to one skilled in the art at the time of the invention to have been motivated to have a distortion free image is outputted with the utilizing of the calibration patterns that allow the precise evaluation of the medical imaging equipment as taught in Elabd (col. 6 lines 36-46).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to YOGESH K. AGGARWAL whose telephone number is (571)272-7360. The examiner can normally be reached on M-F 9:00AM-5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571)-272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Yogesh K Aggarwal/
Primary Examiner, Art Unit 2622